

Message

From: g.d.beckett [g.d.beckett@aquiver.com]
Sent: 6/21/2018 2:02:44 AM
To: Whittier, Robert [Robert.Whittier@doh.hawaii.gov]; Donald Thomas [dthomas@soest.hawaii.edu]; TU, LYNDSEY [Tu.Lyndsey@epa.gov]; Matt Tonkin [matt@sspa.com]; Gabrielle.Granger@doh.hawaii.gov
CC: Linder, Steven [Linder.Steven@epa.gov]; Shalev, Omer [Shalev.Omer@epa.gov]
Subject: RE: Perhaps a Meeting of the Minds Soon?

Thanks for the thoughts Lyndsey, we can explore more when we can chat together. I understand your point that we are not tasked with making our own determinations of potential transport outcomes, and yes, there is a fine line. As an example, the F&T modeling we did wasn't a determination of likely outcomes, it was an analysis to show the Navy that their present F&T assumptions are likely invalid as we know them. Whether they will change those or not substantively to match what little field data we have remains to be seen.

The LNAPL modeling is a similar review item. GSI's approach cannot really even be called a model, and their continued insistence that it is a conservative approach is probably the key indicator of their mind-set and unwillingness to change approach to a more dynamic and physical assessment of LNAPL transport. As we've all discussed, multiphase transport is quite a bit more complicated than groundwater F&T. So we have a myriad of concerns about both model approaches, and the ability for the Navy to modify their approach to be truly conservative and reflective of field-based worst-case conditions.

Curt Stanley told me that GSI tried to run UT-Chem (multiphase code from Pope et al if I recall), but it wouldn't work out for them so they settled on an approach they call conservative that really isn't, unless of course they assume zero residualization as an end-member and then of course we don't need their spreadsheet to know the answer. As we've been finding, the Navy seems to have ceased their NAPL petrophysical work so we have no site/area parameters for their estimates except literature values that are not from Hawaiian volcanic terrain and use of a "model" that is non-dynamic (it is only a sponge). Most of literature values are for porous media "soil" types. This is something I worked on extensively in the construction of the API LNAPL Parameters database.

As you note, a call will go a long way in hashing this all out to determine how the agencies would like to move forward.

Best regards, and thanks again for the response.

On June 20, 2018 at 11:26 AM "TU, LYNDSEY" <Tu.Lyndsey@epa.gov> wrote:

Hi Gary,

I agree that we all need to start thinking about effort going into the review of the tech memo. I'm glad you're thinking about accommodating the upcoming workload, and we've already asked Matt to begin thinking about this and provide some options to us for review.

To everyone regarding timing of the tech memo: The tech memo will come out the 20th of July and we will be in Hawaii in person to begin preliminary TUA discussions the week of August 13th. We will all have about two weeks to do an initial read, with the third week before the 13th for our internal discussion of our review. Though I can't estimate how much

time you'll need, I would advise holding at least some time in those two weeks for an in depth read of the tech memo. Our meetings that week will be very broad and the tech memo will be a smaller component of a significant amount of work supporting the TUA decisions. We'd like to have a basic understanding of the good and the bad of the tech memo- but there may not be a full meeting devoted to the tech memo. My understanding is that the GWMWG meeting will be primarily for discussion of the capture zone model the Navy will be providing, but will not cover the rest of the tech memo.

As far as the type of work, I believe we should all discuss this together. Our role is to look at and comment on the Navy's approach, as well as what needs to be adjusted in the final models. It's a bit of a fine line to 'independently review' vs. derive our own assumptions and answers. What you are proposing reads as an independent analysis, which I am not in favor of. Instead I think it would be more appropriate to independently *test* the assumptions the Navy's making, highlight inconsistencies or inaccuracies and provide some specific recommendations for changing their work moving forward. I think we can make important observations working within the Navy's tech memo, so we should discuss further the ways (and effort) you can envision doing that work.

I agree that we should all have a chat about who is doing what related to the Tech Memo in the next couple of weeks. In the interim, perhaps everyone (who hasn't already) could send me their anticipated review plan (very, very simplified) of the report and the capture zone model if applicable. I'll try to pull it into a more organized single document and we can use it for our discussion to try and reduce duplication.

Feel free to reach out for more clarification.

Thanks,

Lyndsey Tu

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From: G D Beckett [mailto:g.d.beckett@aquiver.com]
Sent: Tuesday, June 19, 2018 9:06 AM
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Subject: Perhaps a Meeting of the Minds Soon?

Hello folks,

As we all know, there are a number of things happening (or not) on the Red Hill groundwater protection front. We have a few items that are clearly defined, and a number of other items that are important, but less defined. It might help us all to have an internal call for the purpose of detailed scoping and timing of the most critical tasks, both those internal to our team and those we are expecting of the Navy &/or USGS.

One task that Fenix has given me is to complete some framing LNAPL transport modeling. I see that maybe working as follows. Matt & his folks will finish their geologic spatial analysis and determine ~3 cross-sectional type areas where LNAPL transport is likely to be worst-case. Those might include any place where open voids (tubes, off-gassing features, etc.) or high permeability bedding are present near the base of various tanks. We would then take those & get parameterization input from Bob & Don. With the cross-sections parameterized, I would then run some transport scenarios for chronic and instantaneous releases of volumes consistent with Phil Meyers work and our own ranges like Omer provided. The key to this is being geologically site specific but picking those potential real conditions that would be anticipated to result in worst-case transport. In turn, that would give us a framing on how far and fast NAPL might migrate and whether or not the Navy's Red Hill capture zone would actually be effective.

That of course is just a single example of the many items we have in front of us, including review of recent and upcoming Navy work products and at what level of detail we need those (and who does them). We have limited time within the schedule and at least for me, I would like to have a sense for the ebb & flow of the work effort so I can best arrange my availability.

Best regards.

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